

Remarks

Claims 1 to 35 were previously pending. Claims 9, 22-24 and 33-35 have been canceled without prejudice or disclaimer, where claims 22-24 and 33-34 were previously withdrawn from consideration based on the restriction requirement of November 6, 2003. Claims 1, 5, 10-11, 18-19 and 30-31 are amended to correct for informalities and/or antecedent basis errors. Claim 1 has also been amended to recite the features recited in previously pending claim 9. Claim 36 has been added. Support for new claim 36 can be found in the specification, inter alia, at page 6, line 29 – page 7, line 3.

In light of the foregoing amendments, claims 1-8, 10-21, 25-32, and 36 are currently pending. Based on the foregoing amendments and the following remarks, Applicants respectfully request reconsideration of the outstanding rejections and passage of the claims to allowance.

Response to Restriction Requirement – Elected Claims Improperly Withdrawn

Applicants note that the Office Action of January 30, 2004 identifies claims 22-34 as being withdrawn from consideration. However, Applicants elected to prosecute Group I, corresponding to claims 1-21, 25-32, and 35, without traverse, in the response dated December 3, 2003. Applicants do not understand why claims 25-32 were withdrawn from consideration and again respectfully request examination of those claims.

Applicants' remarks below address only those claims that were examined (claims 1-21 and 35) in the Office Action.

§ 112 Rejections

Claims 1-21 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. In particular, the following rejections were made.

In Claim 1, “the one or more outer cladding layers” lacks antecedent basis.

In Claims 18-19, “the silica substrate tube” lacks antecedent basis.

Applicants have amended claims 1 and 18-19 to correct for antecedent basis errors.

In summary, Applicants respectfully submit that the rejection of claims 1-21 under 35 USC § 112, second paragraph, has been overcome, and that the rejection should be withdrawn.

§ 102 Rejections

Claims 1, 5, 8-9, 13-17, 20 and 35 were rejected under 35 USC § 102(b) as being anticipated by Le Sergent (U.S. Pat. No. 5,364,429). Further, claims 1-5 and 35 were rejected under 35 USC § 102(e) as being anticipated by Edvold et al (U.S. 2002/0159735 A1).

Applicants respectfully traverse these rejections for the following reasons. Le Sergent does not anticipate claim 1 of the application because the reference does not disclose, either explicitly or inherently, each claimed element. For example, Le Sergent does not disclose “forming a concentric fluorine reservoir adjacent to the innermost cladding layer” or “wherein the fluorine concentration in the fluorine reservoir is higher than the fluorine concentration in either the core or the innermost cladding layer.”

Le Sergent discloses an index profile of an active optical fiber in the figure. In the description, area 2a corresponds to a core, area “c” corresponds to an optical cladding, and area “e” corresponds to an outer cladding. See Le Sergent, col. 3, lines 11-26. Le Sergent does not disclose or teach any reservoir, fluorine or otherwise, formed between the innermost cladding and the core. Applicants note that the claimed “reservoir” is defined in the specification at page 6, lines 22 et seq. In contrast, Le Sergent does not disclose, teach, or suggest a reservoir, but rather discloses doping the outer cladding with dopants, such as fluorine. See col. 2, lines 55-68. Accordingly, Le Sergent does not disclose forming a fluorine reservoir as claimed.

In the Office Action (at page 3), the Patent office points to annulus “c” as being equivalent to the claimed fluorine reservoir. Even if, *arguendo*, one of ordinary skill in the art would read the term “reservoir” to cover a cladding layer (a position Applicants do not agree with), Le Sergent does not disclose the doping of the cladding “c” with fluorine.

The Patent Office also states: “Le Sergent’s figure shows that the optical fiber made, inherently is drawn from a substrate tube having its fluorine reservoir at a higher concentration than its core and cladding as shown by the refractive index profile of the manufactured fiber.” Applicants respectfully disagree. In order for anticipating subject matter to be “inherent” in a reference, the evidence must make clear that the missing descriptive matter is necessarily present

in the reference, and must be so recognized by persons of ordinary skill. Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. See *In re Oelich and Divigard*, 212 USPQ 323, 326 (CCPA 1981).

In the present case, Applicants' claimed feature that "wherein the fluorine concentration in the fluorine reservoir is higher than the fluorine concentration in either the core or the innermost cladding layer" is not inherent in the cited reference. Le Sergent states that "for example, boron and fluorine can be used to reduce the refractive index of silica, or phosphorus and germanium can be used to increase it" (col. 1, lines 22-25). Given these choices, it is not possible to infer compositional constraints from a refractive index profile alone. For example, a layer with a higher index than silica may contain a substantial amount of fluorine if it also contains a substantial amount of and index raiser, such as germanium or phosphorus. Also, a layer with an index less than that of silica may contain no fluorine, but only boron, for example. Thus, the index profile provided by Le Sergent does not provide any evidence that Applicants' claimed feature is inherently disclosed by Le Sergent.

With respect to Edvold, the reference also does not disclose "forming a concentric fluorine reservoir adjacent to the innermost cladding layer" or "wherein the fluorine concentration in the fluorine reservoir is higher than the fluorine concentration in either the core or the innermost cladding layer." Edvold discloses a multiple cladding fiber (core 12, clad 14, clad 16, and clad 18), as shown in Fig. 1. Edvold does not disclose any reservoir, fluorine or otherwise, formed between the innermost cladding (e.g., 14) and the core (e.g., 12), as is claimed. Further, while Edvold discloses that claddings 14 and 16 are doped with fluorine, Edvold does not disclose that the fluorine concentration in a fluorine reservoir is higher than the fluorine concentration in either the core or the innermost cladding layer. As mentioned above, it is not possible to infer compositional constraints from a refractive index profile alone. For example, a layer with a higher index than silica may contain a substantial amount of fluorine if it also contains a substantial amount of and index raiser, such as germanium or phosphorus. Also, a layer with an index less than that of silica may contain no fluorine, but only boron, for example.

Claim 35 has been cancelled without prejudice or disclaimer, rendering that rejection moot.

Regarding new claim 36, Applicants respectfully submit that neither Le Sergent nor Edvold discloses or suggests a “fluorine reservoir adjacent to the innermost cladding layer, wherein a differential width of the fluorine reservoir is less than about $\frac{1}{4}$ a width of a diameter of the core.”

Accordingly, for at least the reasons above, Applicants respectfully submit that the rejection of claims 1-5, 8-9, 13-17, 20 and 35 under 35 USC § 102 as being anticipated by Le Sergent and/or Edvold has been overcome and should be withdrawn.

§ 103 Rejections

Claims 6-7 were rejected under 35 USC § 103(a) as being unpatentable over Edvold et al. Additionally, claims 10-12 were rejected under 35 USC § 103(a) as being unpatentable over Le Sergent.

Applicants respectfully traverse these rejections for at least the reasons stated above. In light of those remarks, one of ordinary skill in the art would not have been motivated to modify the disclosure of Le Sergent and/or Edvold to produce Applicants' claimed invention.

In addition, claims 1-5, 8 and 35 were rejected under 35 USC § 102(b) as being anticipated by or, in the alternative, under 35 USC § 103(a) as obvious over Abe (EP 0091738). Without acquiescing to the propriety of the rejection based on Abe, Applicants have amended claim 1 to recite the features of previously pending claim 9. Further, claim 35 has been cancelled without prejudice, rendering the rejection based on Abe moot.

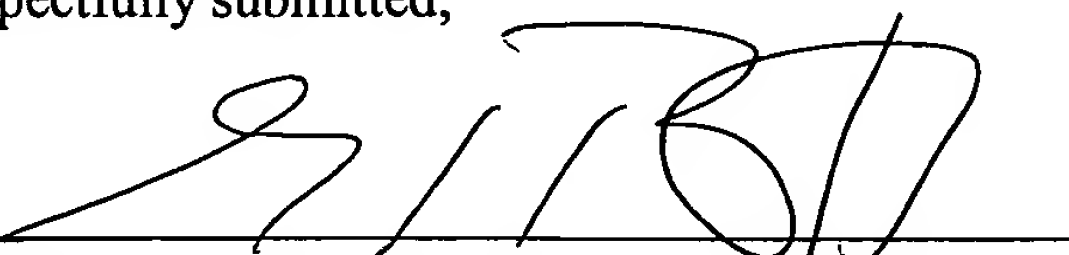
Accordingly, for at least the reasons stated above, Applicants respectfully submit that the pending claims are patentable over the references of record.

Conclusion

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested. Please contact the undersigned should there be any questions or in order to expedite prosecution.

Respectfully submitted,

4/29/04
Date

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